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ABSTRACT

Assessment of student achievement in the workplace identifies workplace skills students may not demonstrate in course work. It also induces a continuous sensitivity to industry needs. On-job training tends to have sufficient formality to encourage organized assessment and off-job learning can involve assessment to the point of excess. However, within the assessment of work-based learning, assessment of learning in the workplace is the most neglected. The remedy for this neglect requires two methodologies or strategies--one strategy for assessment in the workplace and another overall strategy for assessment of work-based learning with assessment in the workplace as one part. Focus of workplace assessment should be the three complementary components of job competence--skills of tasks, task management, and the role/job environment. The elaboration of the three in different workplaces is a matter for joint exploration between course team members and staff in the workplace. Standards of performance need to be developed, which should be thought of as criteria of performance rather than standards of competence. Information can be obtained from staff in the workplace who record whatever a learner has performed to workplace standard on an assessment map. Portfolios may be a preferred method to offer measured performances rather than profiles that provide generalizations. (YLB)

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ASSESSMENT IN THE WORKPLACE - NEWS FROM THE FARAWAY LAND OF WHICH WE KNOW LITTLE

Much as I would like to wave a wand and say, "This is all you need to do," I am not able to give you a slick solution to the problem of assessment in the workplace. There is no model instrument - no profile, no investigative instrument, no rating scale - to perform the magic. This is, perhaps, as it should be. We should distrust simple formulae, particularly those which involve simply throwing paper at a problem. Instead we should acknowledge the need to exercise interpretative judgment within the many functions of the vocational education and training system.

We can, however, adopt some principles applying to assessment, the role of the workplace and the kind of developmental approach which can be followed. The importance of assessing students achievement in the workplace is such as to make the effort worthwhile.

WHY ASSESS IN THE WORKPLACE?

In deciding to explore assessment in the workplace, we seemingly elect to make life difficult for ourselves. In conventional assessment terms the workplace resembles a hostile environment. It is often difficult to control or predict, it is noisy (in an informational sense - there is more happening than we wish to deal with), it is complex, and it is difficult to compare one situation with another. Why go to all the trouble?

In some cases assessment will take place in the workplace because it is cited in a **course programme** in the context of 'work experience' or as a location for projects or assignments. This may represent mere lip service to 'relevance' or a more wholehearted embracing of work based learning. Alternatively, the role of the workplace in **learning** may be recognised, and assessment will form part of the realisation of that role.

In other cases the workplace may be seen as an **additional source of information** on students' achievement, enabling assessments and grading to be more widely and, thereby, soundly based. Extending this, an **'accreditation gap'** may be identified. It is a common phenomenon for students to acquire or demonstrate in the workplace skills of both particular and general relevance and which are either not

'covered' by course content or which those students fail to acquire or demonstrate in the study of theory or in simulations.

At a course management level, assessment in the workplace can induce a continuous sensitivity to the needs of industry and commerce. It does not replace the need for course review or consultation, but being a more subtle mechanism than these processes can usefully complement them.

WHAT SHOULD BE ASSESSED?

The question of what, generally, should be assessed is one answered all too often on grounds of convenience. In principle, however, assessment should be concerned with whatever provides useful information, rather than that which is easy to assess. B/TEC (1985), in a handbook for moderators, expresses this as emphasising "the need for a full range of work-related knowledge and skills - not just the knowledge and skills amenable to formal testing".

WHAT IS THE ROLE OF THE WORKPLACE IN LEARNING?

Later in the same document, it is suggested that the relevance and development of courses should be sought by, among other means:

> "ensuring that course content, projects, assignments and the main assessments are industrially and commercially realistic in approach, organisation and grading of student achievement;
>
> "encouraging course teams to develop and evaluate, wherever possible, practical applications and measurement of skills, on and off the job."

Making use of the workplace in learning and accreditation seems natural as a response to such injunctions. But it is risky. The risks are political, organisational and pedagogic. Those at risk include local authorities, colleges, examining and validating bodies, employers and learners - students, trainees, employees. Risk, however, is not new. We have - until recently, unchallenged - risked an approach which almost totally denied the workplace as a source of learning. It was that which was learned for along with other purposes of learning, we insisted, in defiance of our personal experience. Perhaps, then, we are in the process of exchanging risks or spreading the risk.

The risk can of course be reduced if we recognise the strengths and weaknesses of the workplace and do not regard it either as an optional extra of no great import or as the cure-all for ensuring 'relevance' or student motivation. If we ignore, for a moment, the boundaries of course programmes,

we can try to define the status of the workplace among various opportunities for an individual's learning.

One attempt to do this is offered by the definition of work based (not workplace) learning used in the YTS Core Skills Project (Levy, 1986). Work based learning is taken to mean the linking of learning to the work role of the learner and:

> "having three inter-related components, each of which provides an essential contribution to the learning process. These three are concerned with:
>
> - structuring learning in the workplace;
> - providing appropriate on-job training/learning opportunities;
> - identifying and providing relevant off-job learning opportunities."

In this view the workplace does not dominate the learning opportunities, although it may be appropriate for it to do so in some instances. But this 'appropriateness' derives from the linking of learning to the work role of the learner, and in other instances may determine that a lead is taken by on-job training or off-job learning opportunities.

In terms of the boundaries of course programmes - expressed through objectives or expected outcomes - we can anticipate that learning in the workplace would have greatest potential in respect of those objectives or outcomes which most closely correspond to the work role of the learner and the skills and knowledge which that entails. As will be discussed below, a concept of **job or occupational competence** may be useful for capturing the essence of learning in the workplace.

THE NATURE OF ASSESSMENT

It is important, also, to locate assessment in the workplace within the mainstream of assessment. It is not an outlandish practice, not is it the poor relation of some 'proper' assessment. Indeed, addressing both the problems and the potential of assessing in the workplace can lead to a reappraisal of the assessment process in general.

There is a danger in all assessment that it comes to be seen as the use of 'assessment instruments'. Many of the processes which are crucial to fairness, consistency, standards, the learning process lie outside the use of tests or marking of assignments.

Consider, in particular, one broad function of assessment, that of accreditation of achievement. This involves assessment in a summative mode, as against formative or diagnostic/predictive ones. Figure 1 shows the relationship between various components of accreditation, including assessment. In particular, it shows a breakdown of the assessment components, and a distinction between the measurement of performance and the assessment of competence. It is this distinction - frequently lost in the unthinking use of assessment instruments - which is crucial to the efficacy of assessment in the workplace. If learning in the workplace forms part of a wider concept of work based learning, assessment in the workplace does not have to be totally independent. Measured performance in the workplace can be combined with other information to enable the generalisation or aggregation that leads to the assessment of competence.

Similarly, assessment in its formative and diagnostic modes can be seen as having components to do with the gathering of performance information, its interpretation, communication and use. The recognition that assessment is not indivisible removes the fear of having to look to the workplace for a **judgment**. The measurement of performance in the workplace provides **evidence**.

Within the assessment of work based learning, assessment of learning in the workplace is the most neglected. On-job training, by contrast, tends to have sufficient formality to encourage organised assessment, and off-job learning can involve assessment to the point of excess.

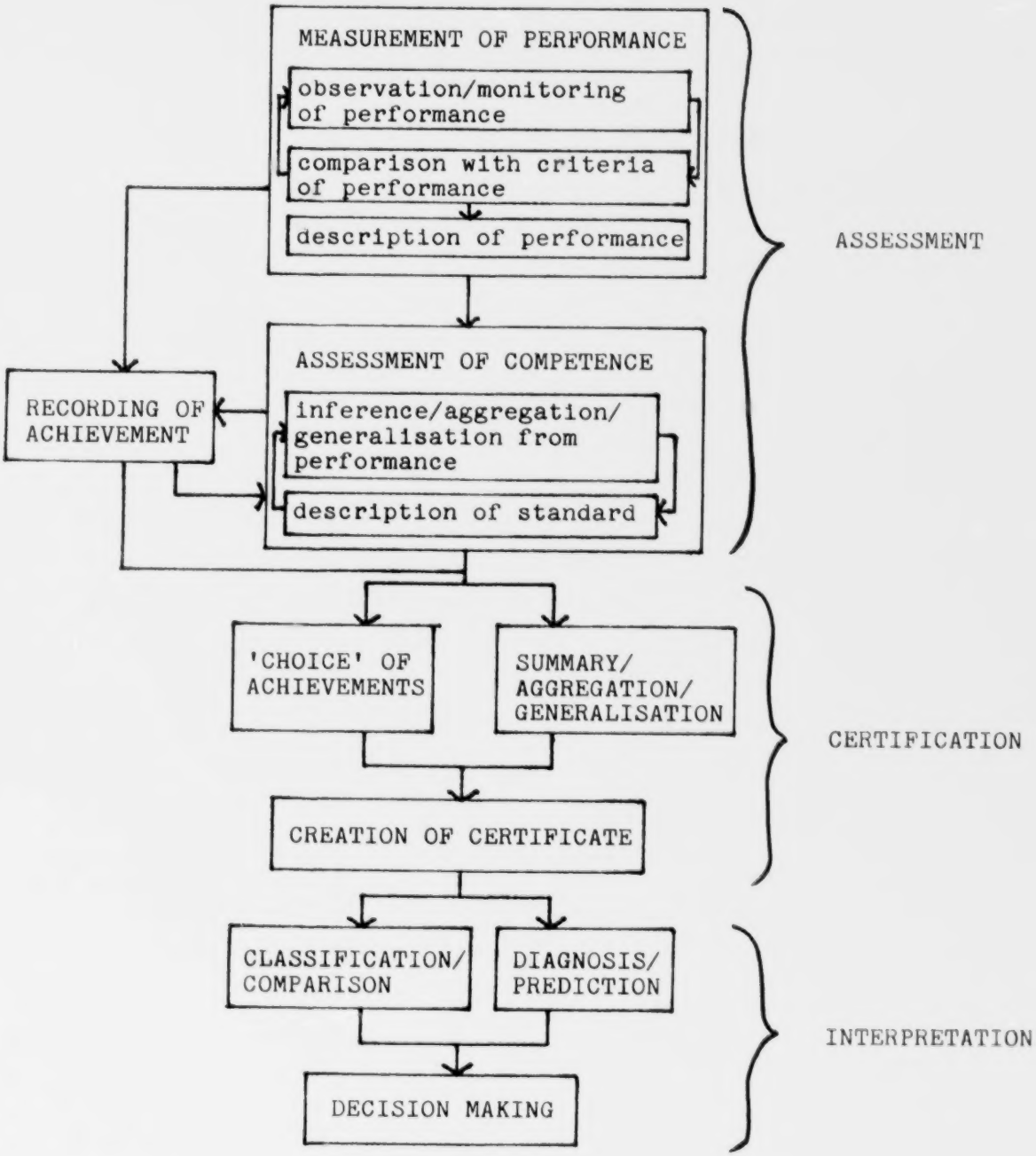
THE NEED FOR STRATEGIES

The remedy for this neglect requires two methodologies or strategies. One for assessment in the workplace, certainly, but given the shortage of easy answers, a strategy for **development** of assessment in the workplace as part of an overall strategy for assessment of work based learning.

In both of these, we should not be too arrogant about assessment in the workplace. It's rather like the question as to who discovered America. Some say Columbus, others Eric the Red, and I have a suspicion that it was Madoc, a Welsh prince. But of course, the North and South American Indians negated any need to discover America. Similarly, it is important to recognise that assessment already takes place in the workplace. Further education, however, makes insufficient use of it. To some extent this is understandable as the assessment taking place is of immediate significance only. But if we focus on obtaining measurements of performance rather than assessments, we can obtain information for which there may be no substitute.

Figure 1

INTERRELATED PROCESSES OF ACCREDITATION



But we cannot do this by sitting in colleges and sending out forms to be filled in. We have to explore the workplace with those who know it well - supervisors and trainees above all, but also training officers and workplace instructors.

THE FOCUS OF WORKPLACE ASSESSMENT

There is a difference between what can potentially be obtained as a contribution from the workplace to the assessment process and what would tend to be delivered were there to be little intervention.

Supervisory and management staff in the workplace should be able to report on a learner's competence in a job. The question as to whether someone is competent has always been asked in a general way - for evaluating training, organisation and management review, appraisal or for references for job applications. But the answers to the general question would be of limited value in the context of student assessment. What is lacking is some framework for determining what is meant by job competence. Mansfield and Mathews (1985) proposed a simple typology as a starting point for focussing on job competence. Three complementary components of job competence were identified - skills of:

> tasks - skills used in a routine way in tasks which have a definite outcome;
>
> task management - skills used when, for example, there are a number of tasks to carry out or where the tasks involve additional activities or responsibilities,
>
> the role/job environment - skills of working with colleagues, customers, of responding to critical factors of cost, time, safety.

The second and third components in particular serve to reinforce arguments for assessment in the workplace. These types of skill are very hard to assess through simulations or other exercises, and yet they are major factors in a student's capacity to put other acquired skills and knowledge into practice.

The workplace, however, is not teeming with staff busily making observations of learners' or experienced workers' task management or role/job environment skills. It is the completion (or otherwise) of tasks which would tend to be included in any spontaneous report of performance.

Supervisors and managers are not alone in this restricted vision of competence. In the Review of Vocational Qualifications report (MSC/DES, 1986) is to be found the following definition of a vocational qualification:

> "A vocational qualification is a statement of competence clearly relevant to work and intended to facilitate entry into, or progression in, employment, further education amd training, issued by a recognised body to an individual. This statement of competence should incorporate the assessment of:
>
> skills to specified standards;
>
> relevant knowledge and understanding;
>
> the ability to use skills and apply knowledge and understanding to the performance of relevant tasks."

While it is possible to put too narrow an interpretation on the use of the term 'tasks' in this instance, there is certainly no attempt in this definition to challenge convention.

It would be surprising if the three components of job competence had nothing to contribute to the assessment of students' achievement. Either they would overlap with or subsume existing objectives or outcomes, or they would indicate areas to which objectives or outcomes could usefully extend. The elaboration of the three in different workplaces takes time, however, and is a matter for joint exploration between course team members and staff in the workplace.

WHAT ABOUT STANDARDS?

There is a distinction between standards of the workplace and standards as they apply nationally for B/TEC? This is one of many distinctions within an emotive and complex topic. Some of these are discussed further by Mathews and Mansfield (1985), particularly with regard to the functions for which we need standards. As far as the standards of the workplace go, we will do well to recognise, analyse and describe them. They are not trivial to detect. This is not because they are 'low' or unimportant, but because they are so deeply embedded in the practice of work. Learners come to recognise standards not via some lucid description of them, but by inference from the acceptability of their work.

Moreover, the standard of performance in a task, say, is very different from a standard of achievement which is intended to have national comparability. This latter standard is a matter of aggregation of evidence and of negotiation, and is not affected by the particular standards demanded of a workplace. What the workplace standards do is

define more precisely the performance demonstrated by the learner. They reduce uncertainty as to the significance of the achievement and thereby make it easier to locate a student on the quite different and formal scale of standards which an examining or validating body creates for the purposes of classifying and describing students and their learning.

Any measurement of performance in the workplace, therefore, needs to include a **description** of the standards applying. It is more accurate to think of these as **criteria of performance** rather than standards of competence which has a more general character.

It is in fact description which lies at the heart of the use of measurement of performance in the workplace for assessment purposes. The 'natural' assessment which goes on addresses the processes and products of the workplace in terms of operational priorities. Assessment in the workplace has tended to become distorted when it has moved away from the measurement of the particular to a commentary on the more general. This is characteristic of many fields of assessment, not just assessment in the workplace. Profiles, in secondary and further education, for example, when unsupported by a structured system of recorded performance often encourage a rush to judgment. Rating scales on behavioural attributes require a degree of generalisation often frustrating to their completer. Skill tests are often regarded as the threshold for a licence to practice, despite the recognised artificiality of their content and administration.

But formalisation of assessment in the workplace carries some unique problems as well. For example, supervisors who are otherwise perfectly willing to assign responsible work to trainees/students suddenly become inhibited in accrediting achievement. They start to compare performance against standards which are different to those which operate in that workplace. It is as though a maiden aunt had come to tea, and the children's table manners were found wanting.

Supervisors and managers have their own experiences of assessment which are likely to intrude on the measurement of performance as soon as a degree of formalisation is required. It may be existing company practice which determines their expectation of an assessment process, or, failing all else, their experiences within their own school or college careers.

To these limitations - which we can only explore further in specific instances - we must add the better known biases and errors of assessment. These may be less severe in the measurement of performance than in the gross judgments of assessment of competence, but they cannot be altogether

discounted. The unwillingness to accredit achievement referred to above may indeed be a version of the phenomenon of setting impossible standards which is frequently encountered in non-vocational education settings. But it is not proposed that bias and error is merely bemoaned. The strategy is one of interpretation and incorporation of information generated by the measurement of performance. This gives a good deal of control and a power to moderate that would be difficult to achieve were those in the workplace simply asked for a gross assessment.

CHARACTER OF THE WORKPLACE AS AN ASSESSMENT ENVIRONMENT

Workplaces vary enormously in their organisation, and they will clearly present many different problems of access and receptiveness to members of course teams. But the workplace has the potential to provide:

- events/instances of performance;
- coverage of job competence;
- 'natural metrics' and criteria of performance;
- assessors/reporters.

It involves problems of:

- noise (informational);
- typicality/generalisability of performances;
- credibility;
- reliability, dishonesty, bias.

It demands tools for:

- observation;
- analysis/description;
- recording;
- locating performance within structure of competence.

It must contribute to assessment which is, for example:

- fair;
- consistent;
- contributes to learning;
- confirms learning;
- related to national standards;
- comparable;
- criterion referenced.

Performance in the workplace can always be described in a number of ways. Individual events can be described in job specific or functional terms. They can be described for wider interpretation by using a common language of skill such as the YTS core skills (MSC, 1984). They can, further, be described in terms of the light they throw on achievement of learning objectives or a desired learning outcome.

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The kinds of process which site assessment in the workplace within a structure of assessment of the whole of work based learning all involve inference from the observed event. Inference about the skills used. Inference as to whether the event was representative of a learning outcome. Inference cannot be avoided. What has to be done, therefore, is to ensure that the inferences involved in the assessment process have a clear rationale and that they are not the responsibility of one person alone.

OBTAINING THE INFORMATION

Inclusion of performance and learning in the workplace within the scope of an assessment strategy may well induce change in course objectives and outcomes. Close inspection of the character of workplace performance could suggest further ways of expressing the spirit of work-relatedness within course programmes.

It would not be possible, in any case, to gain best value from the workplace by imposing an alien perspective, with skills and knowledge addressing problems of a different order from those actually encountered by learners. That is already problem enough in the case of student motivation.

If there is to be a concentration on the reporting of performance rather than the generalised assessment of competence, staff in the workplace can be asked to report whatever a learner has performed to workplace standard, or can be asked to give evidence of performance with respect to specific skills, areas of skill or attributes.

Going beyond this level of information entails unnecessary risk. It is, in workplace terms, usually spurious to report degrees of satisfactory performance. Moreover, partially satisfactory (ie, unsatisfactory) performance is a weak basis for inference either of skills used or of objectives achieved.

The exact manner of obtaining the information - agreeing what should be reported, how and in what detail it should be recorded is a matter for negotiation. A college designed system is unlikely to work. Information may come back, but on what basis, no-one would ever know.

There are, however, various tools which can help in the development and negotiation process. One is an assessment map. This may be a chart, a flow diagram, an information tree, but whatever form it takes, it relates the following:

objectives and/or outcomes;
opportunities for measuring performance;
recording of performance information;
the process of assessment/grading.

Another essential tool is a language of skill. The example which has already been cited is the YTS core skills. Its use has illustrated the value of being able to analyse workplace and other activity in a common way and one which relates to occupational or job competence, particularly when the three components of job competence are recognised. Other languages could be used, if available, though there are distinct advantages to the YTS core. Techniques of core analysis - analysing work activity for its core skills content - are emerging. And the use of the core skills as such an analytical tool does not prevent existing objectives being retained. The core does not provide a new syllabus, it gives insight into the present one.

HOW SHOULD THE INFORMATION BE USED IN ASSESSMENT?

Nothing can be done without a framework for assessment. This may be provided by a set of objectives, expected outcomes or a definition of job or occupational competence. The framework must incorporate all the opportunities for assessment identified in the assessment map. This may, for example, include all three elements in the definition given above of work based learning. The measurement of performance in the workplace forms part of the framework. No assumptions need be made that this aspect of the assessment must stand alone.

A rationale must be identified for aggregating performances or generalising from them to make statements about trainees achievement which are predictive and not just descriptive. Within this rationale, there can be various techniques for sampling performance, enhancing reliability, weighting different items of information, much as in the construction of an individual assessment instrument. What is crucial is that the pattern of the relationship between individual performances and the ultimate assessment is clear. For, with workplace assessment in particular, there will need to be careful discussion within course teams as to the significance of each student's reported performance.

There is a problem, however, in that the individual performances demonstrated by students cannot justifiably be generalised to any great extent. This may not be a greater problem for performance in the workplace than for performance in an off-job assignment, but it does impose one of the greatest limitations on the 'quality' of the assessment. A common reflex is to turn to profiles as a way of dealing with such information, but this is too simple. A generalisation in a profile is no less outrageous than a generalisation in a grade if the evidence is bound to a specific context. The solution may be to recognise that one aspect of the accreditation process is interpretation by the information

end user. It may be better, through portfolios, to offer some of the measured performances and to resist inappropriate generalisations.

EVALUATION AND REFINEMENT

The design of an assessment process is a resolution of conflict between ideals and the limitations of the 'technology'. The conflicts may lie between reliability, realism, comparability, utility, credibility, cost, and so on. The workplace has merits for assessment in that we are convinced that learners can demonstrate there achievements which they demonstrate nowhere else. But the workplace is hard to handle for assessment purposes, and certainly is not conducive to the highly reliable and comparable assessments which have traditionally been the goal of assessment design.

We therefore have to consider revising the priorities we have among the criteria for satisfactory assessment. We cannot have both the relevance and scope of the workplace and the reliability of the paper and pencil test. Perhaps the key goal of evaluation within the development of assessment which includes assessment in the workplace is the control of the change and a monitoring of its consequences. What do we gain and what do we lose in respect of the various functions of assessment and accreditation?

FOOTNOTE - DO NOT DESPAIR

My reference point in the above discussion has been assessment for accreditation, and assessment in the workplace as a new, though powerful, addition to assessment for college based courses. The arguments can be taken much further to propose delivery of aspects of post-16 vocational education entirely through the workplace. This is what is being studied in Scotland. Already Mitchell (1986) reports that it has been found feasible for YTS trainees to overtake 16+ modules in the workplace. She reports:

> "The project demonstrated that it is possible for workplace learning to be creditable and credible. Modules or individual learning outcomes were delivered in the workplace by a variety of methods."

It was not easy, however, and many difficulties remain. But SCOTVEC are taking the work further. We should be encouraged.

David Mathews
May 1986